

ABSTRACT OF THE DISCLOSURE

An integrated circuit implementing a storage-shelf router used alone, or
5 in combination with other storage-shelf routers, and in combination with path controller
cards, to interconnect the disks within a storage shelf or disk array to a high-bandwidth
communications medium through which data is exchanged between the individual disk
drives of the storage shelf and a disk-array controller. In various embodiments, the
present invention provides virtual disk formatting by a storage shelf router and the
10 storage shelf in which the storage-shelf is included, to external computing entities, such
as disk-array controllers and host computers. By providing virtual disk formatting, a
storage-shelf router can provide to a disk-array controller, and other external
computing entities, the disk-formatting convention expected by the disk-array
controller, even though disk drives and other storage systems that do not conform to
15 the expected formatting conventions may be included in the storage shelf and
interconnected to a disk-array controller and other external processing entities via an
interface provided by a storage-shelf router. Virtual disk formatting, in addition,
allows a storage-shelf router to format a disk drive differently from the disk formatting
expected by external computing entities, so that the storage-shelf router can
20 transparently include additional information into disk sectors, such as additional error
detection and error-correction information.